Amendments to the Specification

Page 8, line 19 to page 9, line 2, please rewrite the paragraph as follows:

In the case of comparatively greater L/D ratio of ~~1.5~~ 0.5 to 3, it becomes easy to obtain a mold having many spaces. Concerning molding performance, L/D ratio is preferably from 0.7 to 2. The average of the short diameter D of expanded resin particles 1, that is, average particle diameter is 1 to 6 mm, and preferably 1.5 to 4.0 mm. By making the particles so as to have such a particle diameter, the particles can penetrate well deep into a comparatively narrow space or a space with a complicated shape.

Amendments to the Claims

1. (Currently Amended) A polypropylene resin molding composite for automobile, comprising a surface layer and a foam layer, or a surface layer, a foam layer, and a base member,

wherein the surface layer comprises a surface layer of a polypropylene resin and a laminate of a cushioning material, and the cushioning material is a polypropylene resin expanded sheet having a compressive hardness of 0.1 MPa or higher,

wherein the foam layer comprises thermoplastic resin expanded particles, the particles comprising a core which is made of a polypropylene resin and is in an expanded state, and a polyethylene resin coat which covers the core and is in a substantially non-expanded state, and

wherein the particles have an L/D ratio of a long diameter L to a short diameter D of from 0.5 to 3.

2. (Previously presented) A polypropylene resin molding composite for an automobile according to claim 1, wherein the thermoplastic resin expanded particles have an average particle diameter of 1.5 to 4. 0 mm.

3. (Previously presented) A polypropylene resin molding composite for an automobile according to claim 1 or 2, wherein the polyethylene resin coat has a melting point lower than the polypropylene resin of the core, or substantially exhibits no melting point.

4. (Original) A polypropylene resin molding composite for automobile according to claim 3, wherein the melting point of the coat is 10°C or more lower than the melting point of the polypropylene resin constituting the core.

REMARKS

Favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

The specification has been amended to correct an obvious typographical error. Support for the amendment is seen on page 8, lines 14-18.

Claim 1 has been amended to specify that the particle has an L/D ratio of a long diameter L to a short diameter D being from 0.5 to 3. Support is found in the specification at page 8, lines 14-18.

The foregoing amendments are submitted concurrently with the filing of an RCE. The rejection of claims 1-4 under 35 USC 103 as being unpatentable over Shioya et al. in view of JP-10-077359 set forth in the Official Action dated May 14, 2003 is respectfully submitted to be overcome by the foregoing amendments to claim 1.

The invention as now defined in the above-amended claim 1 incorporates the limitation of a specific particle shape based on its L/D ratio. That is, the polypropylene resin molding composite for an automobile of the present invention comprises a surface layer having a laminate of a cushioning material which has specific compressive hardness, and a foam layer having thermoplastic resin expanded particles (hereafter called the expanded particles), which has a specific particle shape, and optionally a base member.

The expanded particle has the specific particle shape as defined by its L/D ratio, which is a ratio of a long diameter L and a short diameter D of the expanded particle. The L/D ratio is preferably from 0.5 to 3. If the L/D ratio is smaller than 0.5 or larger than 3 the expanded particles get tangled with each other and the flow of the expanded particles is obstructed. In this case, it is difficult to have the expanded particles penetrate into a comparatively narrow space or a space with a complicated shape. The part of polypropylene resin molding composite, where the expanded particles are not filled well, results in having an inferior surface design such as a grain pattern of the surface layer.

Usually, most of the interior parts of an automobile such as the instrument panel comprising a surface layer and a foam layer cannot have a foam layer with a thickness greater than 5-10 mm because of the restriction of thickness.

Satisfactorily filling the expanded particles in such a thin section requires the L/D ratio of the particle shape to be from 0.5 to 3.

When the expanded particles are filled in such a thin section, if there is not enough thickness for two or more of the expanded particles to lie side by side in the thickness-direction, a space between the adjacent expanded particles is large. In this case, a composite with a good surface is not obtained, because the space remains after molding.

To be more specific, when the L/D ratio is in the range of 0.7-2, two expanded particles lie side by side in the thickness-direction. In this case, a relationship between the thickness (T) and the shape (L and D) meets the following equation.

$$((L+D)/2) \times 2 \leqq T$$

The value of (L+D)/2 represents an average particle diameter of the expanded particles. The value of (L+D)/2 is preferably from 1.5 to 4.0mm, as claimed in Claim 2. Therefore, when the value of (L+D) /2 is from 1.5 to 4.0 mm, the thickness T is from 3.0 to 8.0 mm.

When the L/D ratio is in the range of 0.5-3, 2.5 expanded particles lie side by side in the thickness-direction. In this case, the relationship between the thickness (T) and the shape (L and D) meets the following equation and the thickness T is from 3.75 to 10 mm.

$$((L+D)/2) \times 2.5 \leqq T$$

When the L/D ratio is not in the above range, three expanded particles lie side by side in the thickness-direction. In this case, the relationship between the thickness (T) and the shape (L and D) meets the following equation and the thickness T is in the range of 4.5-10 mm or more.

$$((L+D)/2) \times 3 < T$$

In this case, a desirable thickness of a foam layer for the instrument panel can not be achieved, so design of interior parts of automobile such as instrument panel comprising a surface layer and a foam layer, is limited.

The claimed invention also features a laminate of the cushioning material having a compressive hardness of 0.1 MPa or greater. When the compressive hardness is 0.1 MPa or greater, the contacting power between the laminate of the cushioning material and the core of the expanded particle is enhanced, and the fusion-bonding is improved.

Moreover, the claimed combination of the particle shape L/D ratio of the expanded particles and the compressive hardness of the laminate of the cushioning material makes the polypropylene resin molding composite of this invention have no contraction, no thermal deformation of the surface and good filling qualities.

Shioya et al. disclose a composite material comprising a skin layer, an intermediate cushioning layer and a backing layer. However, Shioya et al. do not disclose the compressive hardness of the cushioning layer, nor the particle shape of the expanded particle.

JP 359 discloses that a foaming resin particle consisting of a core layer and an enveloping layer, and does not teach the particle shape.

Therefore, none of the cited references disclose or teach the features and the effects of the claimed invention.

In view of the foregoing, favorable reconsideration and allowance is respectfully solicited.

Respectfully submitted,

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